

CBCS SCHEME

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BEC703

Seventh Semester B.E./B.Tech. Degree Examination, June/July 2026

Wireless Communication Systems



Time: 3 hrs

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks, L: Bloom's level, C: Course outcomes.

Module – 1			M	L	C
Q.1	a.	Define wireless communication systems. Explain Rayleigh fading wireless channels.	10	L2	CO1
	b.	Explain basic of wireless channel modelling.	10	L2	CO1
OR					
Q.2	a.	Explain the Doppler impact and Doppler fading on wireless channel.	10	L2	CO1
	b.	Describe in detail the concept of coherence time.	10	L2	CO1
Module – 2					
Q.3	a.	Explain the correlation properties of random CDMA spreading sequences.	10	L2	CO2
	b.	Describe CDMA mechanism with relevant mathematical expressions.	10	L3	CO2
OR					
Q.4	a.	Describe in detail MIMO – DFDM.	10	L2	CO2
	b.	Explain the working of single carrier frequency division multiple access using relevant equations. List the advantages of CDMA.	10	L2	CO2
Module – 3					
Q.5	a.	Describe the first generation cellular system in wireless communication cellular technologies. Explain key characteristics and standards.	10	L2	CO3
	b.	Describe the working of orthogonal frequency division multiple access.	10	L2	CO3
OR					
Q.6	a.	With neat block diagram, explain the working of GSM system architecture.	10	L3	CO3
	b.	Explain 2G digital cellular systems.	10	L2	CO3

Module – 4

Q.7	a.	With relevant mathematical expressions, describe the MIMO system model using neat sketches wherever necessary.	10	L2	CO4
	b.	Write a note on MIMO Beam forming.	10	L2	CO4

OR

Q.8	a.	Explain singular value decomposition of MIMO channel.	10	L3	CO4
	b.	Describe in detail the concepts of SVD and MIMO capacity.	10	L3	CO4

Module – 5

Q.9	a.	With neat block diagram, describe the working principle Of Radio Interface Architecture.	10	L2	CO4
	b.	Explain Uplink SC-FDMA Radio Resources allocation.	10	L2	CO4

OR

Q.10	a.	Describe LTE design principles and network architecture along with its features and advantages.	10	L2	CO3
	b.	Explain Downlink OFDMA Radio resources.	10	L2	CO3
